

PORTABLE BETA-ATTENUATION PARTICULATE (PM_{2.5}) MONITOR

General Specifications:

- The monitor must be traceable to US-EPA requirements for automated PM_{2.5} measurement.
- The monitor must use the Beta-Attenuation process for determining particulate matter (PM) concentrations.
- The monitor must utilize a sharp cut cyclone to limit PM size to 2.5 microns or smaller.
- Monitor must be capable of automatic checks of the zero and span.
- The sample must be collected on filter tape; the tape must be mechanically aligned under the sample inlet after completing a beta ray transmission reading to determine the initial filter tape concentration and a post sample reading must be collected to determine PM_{2.5} concentrations of the sample.
- Must include 6 rolls of filter tape with the ability to capture 2 months of operational data on each roll.
- Must have the ability to measure and store up to 200 days of 1-hour averages.
- Must provide access to data for retrieval compatible with a modem or laptop computer.
- Must maintain a data validation set up that produces a report that contains any error messages, including date and time.
- Must have a weatherproof power supply and enclosure.
- Data retrieval must not interfere with monitor operations
- Must include wind speed/direction sensor and software.
- Must include shipping and handling

TECHNICAL SPECIFICATIONS:

- **RANGES:** A minimum of: 0 to 100 milligrams per cubic meter (mg/m³).
- **OPERATING TEMPERATURE:** Must operate in temperatures ranging from -30.0 to 40.0 degrees Celsius.
- **SAMPLE FLOW RATE:** Must be adjustable to 16.7 liters per minute
- **LOWER DETECTABLE LIMIT:** 1 microgram per cubic meter for 24 hour readings
- **POWER REQUIREMENTS:** 12 Volts DC
- **RESOLUTION:** Plus or minus 1 micrograms per cubic meter or better
- **ACCURACY:** Must be accurate up to 2.5 micrograms in a 24 hour period
- **BETA SOURCE:** Must use ¹⁴C, less than 75 microcurie
- **DATA STORAGE:** Up to 200 days
- **VOLTAGE OUTPUT:** 0-1 Volt